COSSD

PRODUCT CATALOGUE

for

TTS DRILLING SOLUTIONS™

Casing XRV™

Key Tool Features:

- Proven friction breaking technology
- Requires less force and torque to install casing
- Fluid pulsation & casing vibration during cementing reduces voids and channeling
- Drillable construction allows for flexibility in future

Improve Casing Installations

Under certain wellbore conditions, the completion string is exposed to a high stress state which may cause issues during the life of the well. The Casing XRV ™allows operators to run casing to TD without excessive force, thus protecting the string from excessive stress.

The Obvious Solution

The need for extended reach tools is steadily increasing as operators try to maximize production. The Casing XRV ™ can be customized to meet your operational requirements.

TTS Drilling Solutions continues to develop its product base by expanding upon proven technologies and practices in the industry. Desigining tools that outperform competitors and providing superior service to customers is the core focus at TTS.

Contact TTS Drilling Solutions to learn more about available products or to request tools for your next drilling operation.

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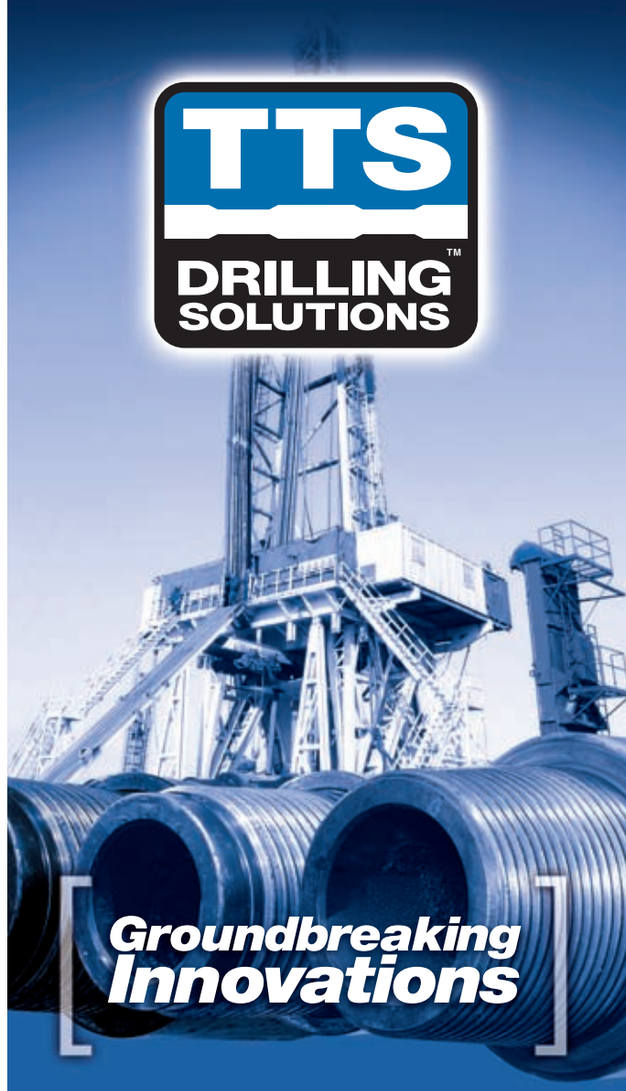
DS-001 (rev. 13-2)



Groundbreaking Innovations

XRV™

Extended Reach Vibratory Tool

Extended Reach Vibratory Tool

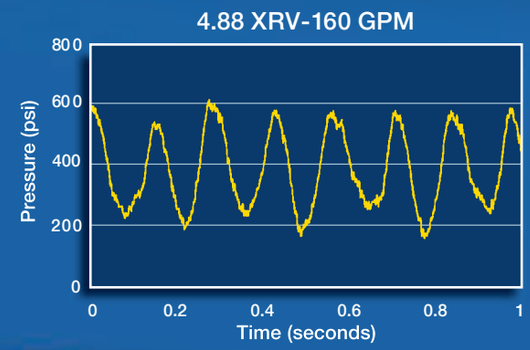
Key Tool Features:

- Excellent tool face control
- Minimal MWD interference
- Increased sliding ROP
- No temperature limitations or fluid compatability issues
- Less WOB requirements result in longer PDC bit life
- Wide range of flow rates

A full range of Safety Joints are available to accomodate all sizes of XRV™ tools.

These tools are manufactured with a proprietary thread designed to prevent unwanted back-off failures. Stress reliefs in the tools minimize bending loads on the break point allowing high flexibility. All XRVs™ and Safety Joints are quality inspected and tested to maintain superior results during field operations.

The XRV™ is highly versatile and will operate within a wide range of flow rates.



The XRV™ is a downhole vibratory tool which creates an oscillating axial force in the workstring.

This oscillating force helps combat friction between the drillpipe and the wellbore which aids in moving the pipe in hole, reduces slip-stick, transfers weight to the BHA and improves tool face control during sliding. Improved sliding and tool face control during steering operations eliminates or decreases extra slide attempts saving time and improving overall ROP.

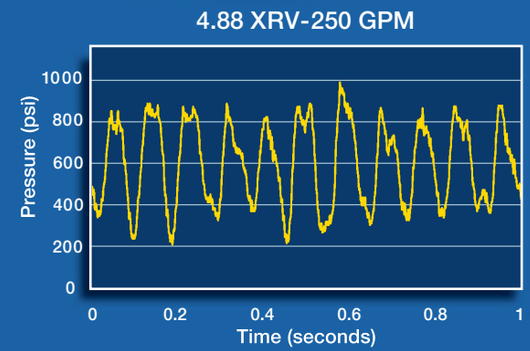
Improve Overall ROP

Historical field data shows increases in sliding ROP of 200% - 500%, and rotary ROP of 150% - 300%. Independent testing has proven the XRV™ more effective at inducing movement in horizontal sections than other extended reach tools available in the industry.

The absence of elastomers in the XRV™ eliminates chances of failure caused by high temperatures, harsh fluids or circulation loss due to plugging of the bit or other BHA components. This rugged design makes it ideal for prolonged operation in demanding environments.

Sizes/Tool Joint Options

Size (OD):	Connection:
4.75”	NC38 (3-1/2 IF)
4.88”	XT-39
5.25”	NC40 (4 FH)
6.50”	NC50 (4-1/2 IF)
8.00”	6 5/8” REG



These tools can be configured to provide optimal results for a given flow rate requirement.